

Relative Clauses and Conjunctions*

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1. Introduction

In this paper, I will argue for, and show the consequences of, deriving relative clause sentences from conjunctions. Because my analysis will be of English, it will be necessary first to consider anaphora and the definite determiner in English, which play a central role in relative clause formation.

2. Anaphora and the Definite Determiner

It has been recognized for some time that account must be taken, for syntactic reasons, of co-referentiality of two NP's. A well-known example is the obligatory reflexivization of the second NP in:

(1) Herman saw himself

as opposed to the non-reflexivization in:

(2) Herman saw Herman

depending on whether the two nouns "have the same reference."

Other examples include the choice of the pronouns it and one, as in:

(3) Anne saw a reindeer and Karen saw it too

(4) Anne saw a reindeer and Karen saw one too

In (3), the use of it implies co-referentiality, while in (4), one is neutral in this respect.

Nouns, then, must be marked, or indexed, for co-referentiality. It is not clear just what relationship this co-referentiality of nouns has with real-world referents, since it is obvious, for example, that the question of the existence of centaurs does not affect the fact that the observations made about sentences (3) and (4) are applicable to (5) and (6) as well:

(5) Anne saw a centaur and Karen saw it too

(6) Anne saw a centaur and Karen saw one too

I prefer to leave the question as an open one, and rather vaguely consider two identically indexed nouns to be "the same" for grammatical purposes.

A change in the form of the second of two co-referential

NP's is what is referred to as anaphora.¹ Pronominalization to

¹ Reflexivization may be thought of as an additional step in this process.

it (or he, she, or they) is an example; since these pronouns do not occur except anaphorically, we may view sentences containing them as semi-sentences. An anaphoric pronoun may be derived if there is a previous sentence in which a prior occurrence of the NP can be found,² even though the previous sentence may be

² With respect to pronouns, this is not a new observation. See, for example, C. J. Fillmore, "On the Syntax of Preverbs," unpublished ditto, 1966.

deleted by the speaker if, for example, it contains information which the hearer has access to from some other source.

I would like to suggest that all NP's containing the definite determiner must be explained in exactly the same way. That is, I suggest that the definite determiner is the anaphoric determiner, and that "first occurrences" of NP's contain only indefinite determiners.³ Thus, under the same conditions of co-referen-

³ This relationship has also been noticed by a number of linguists. See especially LeRoy Baker, "Definiteness and Indefiniteness in English," University of Illinois master's thesis, 1966, and references cited therein.

tiality,

(7) Anne saw a reindeer_a and Karen saw a reindeer_a

(where subscript "a" represents identical indexing) can become either:

(8) Anne saw a reindeer and Karen saw it too

or:

(9) Anne saw a reindeer and Karen saw the reindeer too

In an earlier treatment of this topic,⁴ I concluded that a

⁴ Sandra S. Annear, "English and Mandarin Chinese: Definite and

definite determiner could be used by a speaker if he believed that his hearer had some prior knowledge about the referent. The hearer could have obtained this knowledge by convention, as in:

(10) The moon is full tonight ,
by means of a restrictive relative clause:

(11) The man who spoke to me is my uncle ,
by means of the physical environment, which could account for a sentence like:

(12) The street needs repairing ,
or by some previously expressed sentence, as could be postulated for:

(13) The man came to see you .

I now propose, since this simple observation cannot in any sense be construed as a linguistic explanation of the definite determiner, that it be modified in such a way that the "previous knowledge" which is a necessary prerequisite for the use of the definite determiner be represented as part of the underlying structure of definite determiner sentences, namely as the first conjunct of a conjunction. This first conjunct may remain unexpressed; if so, the result is a semi-sentence. This is precisely the difference between:

(9) Anne saw a reindeer and Karen saw the reindeer too
and any of the sentences (10) through (13); (10) through (13) are semi-sentences, sentence (9) is not. That is, the notion of "previous knowledge", which I postulated in my earlier treatment to account for the appearance of the in sentences like (10) through (13), might be shown, upon further investigation, to be representable by some previous sentence in the underlying structure.

It seems clear that this is the best way to analyze a semi-sentence like (13); it is similar to the other instances of

anaphora which I have discussed. It is not so clear that the previous knowledge presupposed by the in (10) through (12) can or should be represented in this way. At this time, I can only present some of my reasons for suggesting that they should be.

In particular, a sentence like:

(10) The moon is full tonight
may not seem to need an explanation in terms of any preceding sentence, since that preceding sentence hardly ever appears and the referent, by convention, is immediately understood by any speaker of the language. However, there does not seem to be any way of drawing a boundary between such "conventional" uses of the and other occurrences. The only difference between (10) and (12), for example:

(12) The street needs repairing
is that in (10) the context is simply wider and the number of speakers who share the "convention" happens to be much larger. "Intermediate" between these two would be a sentence like:

(14) The dog wants to go out
in which the context might be a household and the number of speakers sharing the convention might be the people living in it. Of course, this is not proof that either (10) or (12) must be explained in the way I have suggested, but it is an indication that an explanation for one of them may also turn out to be an explanation for the other.

Another type of alleged exception to the "previous sentence" hypothesis is exemplified by a sentence like (11):

(11) The man who spoke to me is my uncle
since the relative clause, it has been claimed, provides the "previous mention."⁵ Again, it seems to me that the reason we

⁵See Beverly Robbins, "Relative Clause Adjuncts of a Noun," University of Pennsylvania, TDAP #47, 1963.

believe this to be true is simply that the chances are greater

that the hearer has some previous knowledge about the referent in the relative clause sentence than in a non-relative-clause sentence, since there are, in the universe of things which the NP could be referring to, likely to be more men than men-who-spoke-to-me. However, it is quite clear that it would not be appropriate for me to say (11) if my hearer did not already know, prior to (11)'s being uttered, that a man spoke to me. In other words, the relative clause does not explain an accompanying definite determiner; a linguistic correlate to some kind of "previous knowledge" must be posited for relative clause sentences exactly as for simple sentences.

In addition, if the relative clause were considered to constitute the previous sentence necessary for the appearance of the definite determiner, the occurrence of the indefinite determiner with a relative clause, unreplaced by the definite, would be mysterious, as in:

(15) A man who spoke to me was wearing an orange tie

My proposal is, then, that the definite determiner is anaphoric in just the same way as are the true pronouns and like them must be described as occurring in the second part of a conjunction. "After" these anaphoric replacements, the first clause may be deleted, leaving an anaphoric semi-sentence, depending on the speaker's assessment of the extent of the hearer's knowledge.

It should be emphasized here that given any simple surface sentence containing an anaphoric pronoun or an anaphoric determiner, it may not be possible for the hearer to reconstruct the initial sentence by virtue of which the anaphoric change took place. This point will be taken up again after an analysis of relative clause sentences has been presented.

7. Relative Clauses and Conjunctions

Putting aside for the time being the proposed treatment of the definite determiner, I now wish to present evidence to demonstrate that the deep structure of a relative clause sentence is in fact a conjunction.

1. Paraphrasability

The fact that every relative clause sentence has a conjunction paraphrase constitutes sufficient grounds for postulating identical deep structures for these two sentence types. So:

- (16) I met a lady downtown today and she spoke to me
in Mundari

is identical to:

- (17) A lady that I met downtown today spoke to me
in Mundari⁶

⁶The order in which the conjuncts in this and the following examples appear is not relevant to the present discussion, though it will be seen that this order plays a crucial role in my argument.

2. Co-occurrence restrictions

A whole set of problems faced in generating acceptable relative clause sentences is exactly matched in generating acceptable conjunctions. The rules needed to prevent, or mark as deviant, a sentence like:

- (18) The singer who is old is young

will also be needed for a sentence like:

- (19) The singer is old and he is young

Similarly, whatever makes (20) acceptable also works for (21):

- (20) The singer who is old off-stage is young under
lights

- (21) The singer is old off-stage and young under lights

While this is not evidence for underlying relatedness, since it is conceivable that one set of rules could be developed which would prevent such similar deviancies in both of these sentence types, a far simpler and apparently more natural solution would be to state such restrictions at the deep structure level before the two different sentence types have been generated.

3. Indexing

The indexing of NP's for co-referentiality without which relative clauses cannot be formed is also necessary in conjunctions in order for the anaphora rules to introduce pronouns and definite determiners.

There is also other evidence for this relationship, which will be presented in the form of consequences of the analysis I have chosen.

So far I have only given reasons for suspecting that relative clause sentences and conjunctions have the same deep structure. That conjunctions are basic, with relative clause sentences derived from them, is indicated by the fact that while all relative clause sentences have conjunction paraphrases, the reverse is of course not true, since conjunctions need not have identical NP's; a different source for those which do not have identical NP's would have to be found were relative clause sentences considered to be basic. This would be equivalent to claiming that the following two sentences are underlyingly quite different:

(22) A boy gave me a hamster and a girl gave me a
rabbit

(23) A boy gave me a hamster and he gave me a rabbit
too

since only the latter can be related to a relative clause sentence. Clearly these are not desirable consequences.

Before proceeding with an analysis of relative clause sentences derived from conjunctions and adducing some of the more desirable consequences, the distinction between restrictive and appositive relative clauses must be made explicit.

Restrictive

(24) I used a knife which Seymour gave me

(25) I used the knife which Seymour gave me

Appositive

(26) I just saw a janitor, who gave me this key

(27) I just saw the janitor, who gave me this key

There are many differences between these two types of relative clause sentences. Relevant to the preceding discussion of definite determiners, however, is the recognition that the two definite determiner sentences, (25) and (27), are quite different with respect to the "previous knowledge" involved. In order for (25) to be used appropriately, the speaker must believe that the hearer knows that Seymour gave me a knife, while for (27), as for any simple sentence containing the, the speaker assumes only that the hearer knows what janitor is being referred to. This fact will be made structurally explicit below.

Now, I have claimed that relative clause sentences should be thought of as being derived from conjunctions. Let us consider the conjunction paraphrases of these two relative clause sentence types, restrictive and appositive.

(24) I used a knife which Seymour gave me

(25) I used the knife which Seymour gave me

As a first approximation, to be modified shortly in light of the proposals concerning the definite determiner, both of these restrictive relative clause sentences seem to be paraphrasable by:

(28) Seymour gave me a knife and I used it
where the second sentence of the conjunction has become the superordinate sentence and the first sentence of the conjunction the embedded sentence. That this must be the case may be further illustrated by sentences such as:

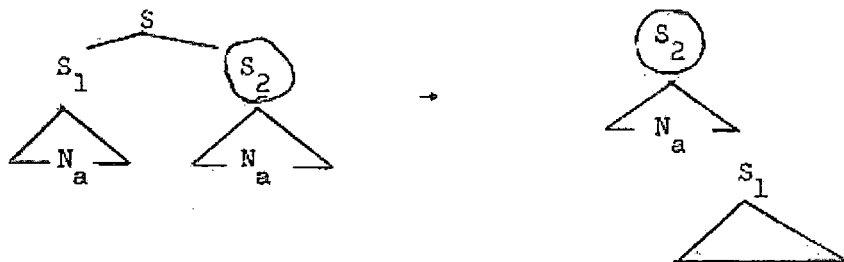
(29) A nut that I met at the LSA meeting in December
wrote me a letter last week
whose paraphrase is not:

(30) A nut wrote me a letter last week and I met
him at the LSA meeting in December

but rather:

(31) I met a nut at the LSA meeting in December and
he wrote me a letter last week

Restrictive relative clauses, then, are related to conjunctions in the following way:

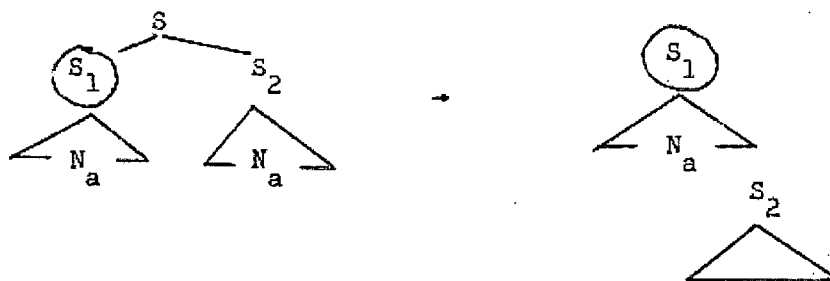


The paraphrase of an appositive relative clause, however, like:

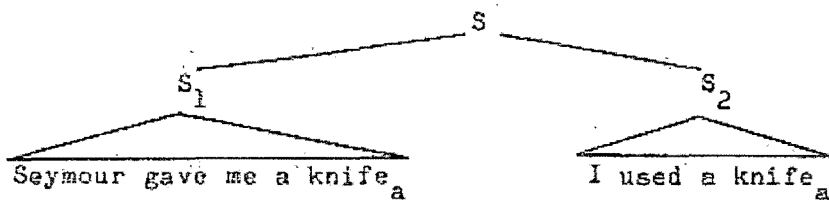
(26) I just saw a janitor, who gave me this key is very clearly:

(32) I just saw a janitor and he gave me this key but not:

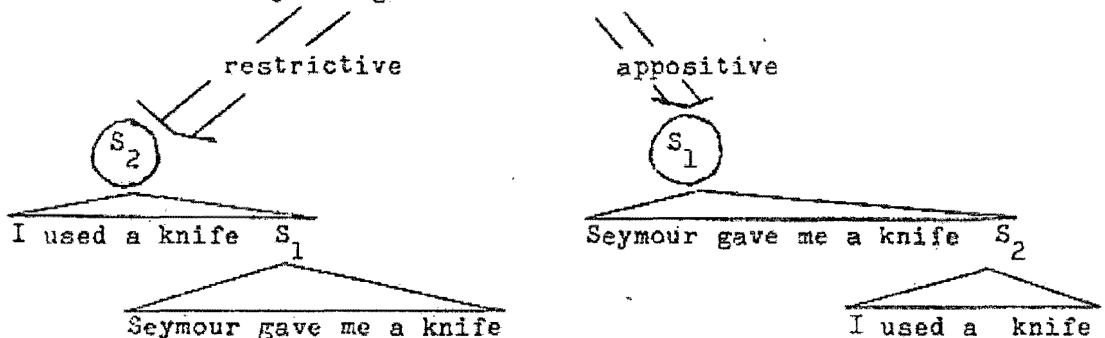
(33) A janitor gave me this key and I just saw him In fact, in informal conversation (32) would be more natural than (26). I claim, then, that the derivation of appositive relative clause sentences can be schematically represented like this:



Aside from the arguments presented above, there is additional evidence for the view that embedding of S_1 into S_2 creates restrictive relative clauses, while embedding of S_2 into S_1 creates appositive relative clauses: a given conjunction with identically indexed nouns in each conjunct should be convertible into either a restrictive or an appositive relative clause sentence depending on which embedding rule is applied, and these two relative clause sentences should be paraphrases; in fact this is the case.



(28) Seymour gave me a knife and I used it



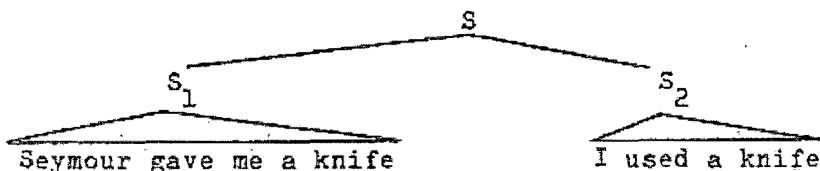
I used a knife which Seymour
gave me

=

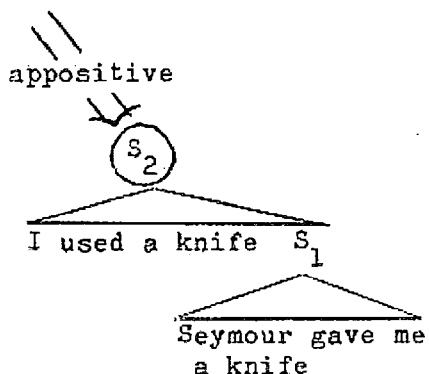
Seymour gave me a knife,
which I used?

⁷ I am purposefully avoiding indicating the structural differences between these two types of embedding. Such a difference must exist, although I do not know precisely what it is, because appositive and restrictive relative clause sentences are "intoned" differently.

Further support for this view is that if we attempt to derive either type of relative clause by embedding in the "opposite direction", we discover that neither is a paraphrase of the original conjunction, and that they are not paraphrases of each other:



(28) Seymour gave me a knife and I used it

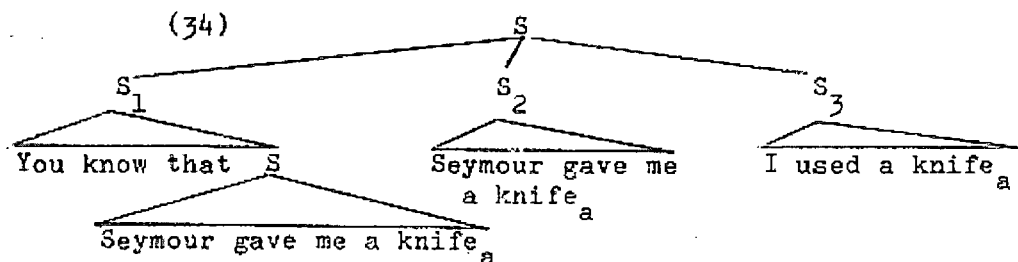


I used a knife, which
Seymour gave me

(25) I used the knife that Seymour gave me

(27) I just saw the janitor, who gave me this key

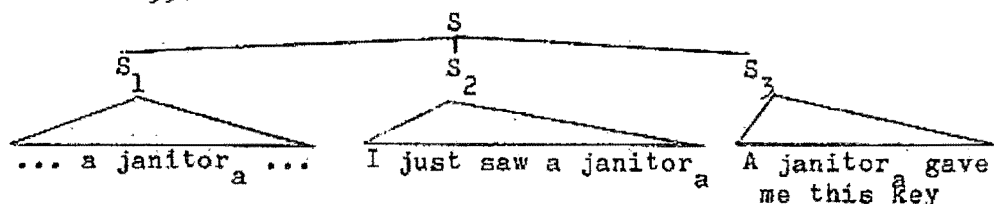
Recalling that the previous knowledge necessary for the replacement of an indefinite determiner by a definite one may be represented by a preceding sentence in the deep structure, the obvious next step is to consider sentences (25) and (27) to be derived, not from two-conjunct conjunctions like their indefinite determiner counterparts, but from conjunctions with three conjuncts. In the structure underlying (25), I claim that the first two conjuncts are identical, except that the first is actually complex and contains the superordinate sentence "You know that...":



(25) I used the knife which Seymour gave me

In the structure underlying (27), on the other hand, the first conjunct, as in the underlying structure of any simple sentence containing the, is indeterminate:

(35)



(27) I just saw the janitor, who gave me this key
Evidence for the "You know that..." superordinate structure is provided by a query such as the following which requests confirmation from the hearer that the speaker's "previous knowledge" assumptions are justified:

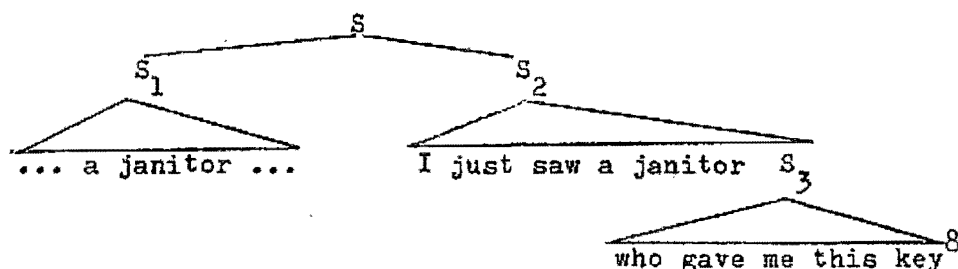
(36) You know the knife Seymour gave me?

which does not appear with simple sentence occurrences of the:

(37)? You know the knife?

Let us consider how the structure (35) becomes the appositive relative clause sentence (27):

Step 1 (optional): embed S_3 into S_2

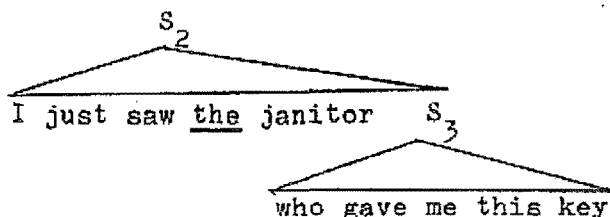


⁸I am also ignoring the problem of at what stage the relative pronoun replaces the identical noun; the question becomes interesting in the case of multiple embeddings: does who replace a guy or a crazy guy in the structure underlying the following sentence?

(i) I sold my car to a crazy guy who wanted to put it in a museum

Step 2 (obligatory): replace a in S_2 by the since it is a repeated occurrence of the NP in S_1

Step 3 (optional): delete S_1

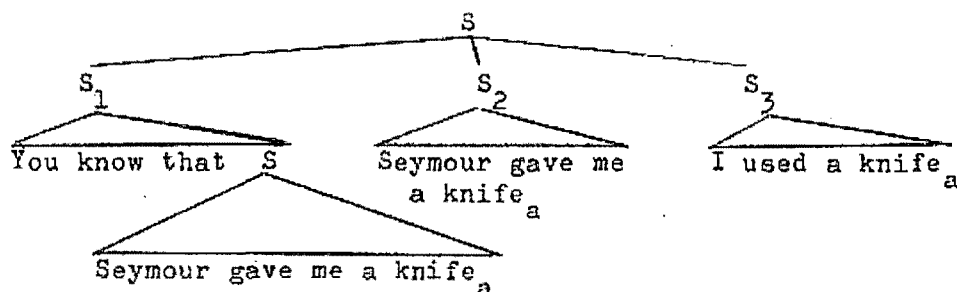


It may now be seen that I have given the structural correlate to the difference, mentioned on page 88, between restrictive and appositive relative clauses with the in terms of what the hearer knows. What I said was that (25) was inappropriate unless the hearer knew that Seymour gave me a knife:

(25) I used the knife which Seymour gave me
while (27) is inappropriate only if the hearer does not know what janitor is being discussed:

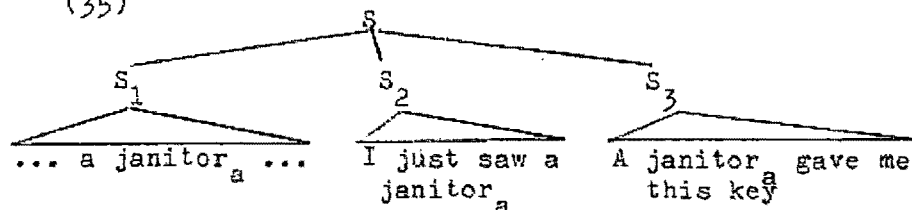
(27) I just saw the janitor, who gave me this key
The deep structures which I have given for these two sentences reflect this fact. Underlying (25) is:

(34)



where no other sentence but S_1 could represent what the hearer knows. The S_1 underlying (27), however, is not recoverable:

(35)



Any sentence containing a janitor_a would be acceptable as the first conjunct, which corresponds to my earlier suggestion that there is an indeterminate number of sentences which could represent what the hearer knows to justify the use of the.

In general, given a sentence containing anaphoric elements, the preceding material is recoverable to varying degrees depending on the type of replacement. So underlying:

(38) He is taking a shower

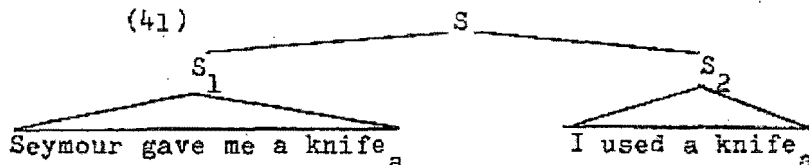
may be any sentence as a first conjunct which contains a masculine noun. Underlying:

(39) Bill doesn't like his mother either

must be a first conjunct of the shape:

(40) Bill doesn't like X

Now we will abandon for the time being the appositive relative clauses and examine in more detail the derivation of restrictive relative clauses, taking first the derivation of the indefinite determiner sentence from its two-conjunct underlying structure:



Step 1 (optional): embed by copying S_1 into S_2

Step 2 (optional): delete the original S_1

-- If this rule is applied, the result is:

(24) I used a knife which Seymour gave me

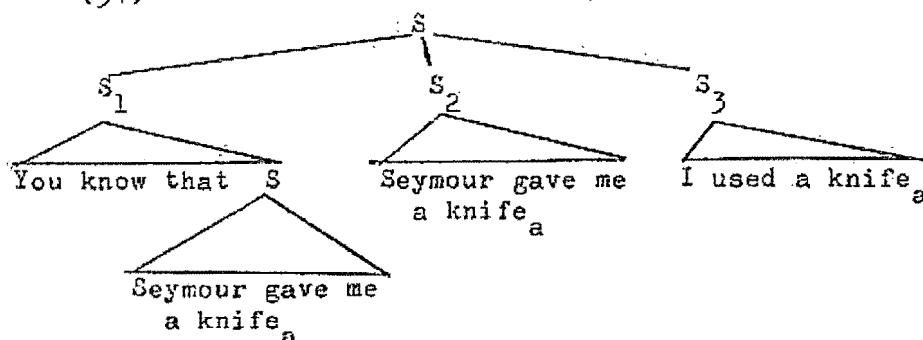
-- If this second option is not chosen, however, the a in S_2 must be changed to the since it is a repeated occurrence, and the result is:

(42) Seymour gave me a knife, and I used the knife
that Seymour gave me

Obviously, (24) and (42) are paraphrases.

The corresponding definite determiner sentence (25) is derived from (34) in a similar way:

(34)



(25) I used the knife which Seymour gave me

Step 1 (optional): embed S_2 into S_3 by copying

Step 2 (obligatory): delete the original S_2 since it is a repetition of S_1

Step 3 (obligatory): change a in S_3 to the because this NP is a repeated occurrence of the one in S_1

Step 4 (obligatory): delete S_1

The slight meaning difference which may be perceived, then, between:

(24) I used a knife which Seymour gave me

and

(25) I used the knife which Seymour gave me

is represented by their respective structures, (41) and (34), which are identical except for the S_1 , the "previous knowledge", in (34). This S_1 corresponds to my claim that the the in a relative clause sentence must be related to a previous sentence just as much as any other occurrence of the must be, and cannot be thought of as being directly related to, or derived from, its relative clause.

4. Some Consequences

Additional support for this view of deriving relative clause sentences may now be presented in terms of the mechanism which I have outlined.

1. Commutative conjunctions

The conjuncts of some conjunctions may be reversed in order

with very little change in meaning. We would expect that the relative clause sentences derived from such pairs of conjunctions would also be very similar in meaning, and indeed this is true. Taking the restrictive relative clause derivations, we can see that:

- (43) There is a paper that deals with definiteness
and I wrote it⁹

⁹An indefinite NP as the subject of a stative verb, at least in my dialect, must undergo the There is transformation, which may create such a pseudo-relative clause as the one in (43).

is similar to:

- (44) I wrote a paper and it deals with definiteness

We are not surprised, therefore, that:

- (45) (from (43)) I wrote a paper that deals with
definiteness

is similar to:

- (46) (from (44)) A paper that I wrote deals with
definiteness

Some conjunctions, however, upon reversal of the conjuncts, involve a significant meaning change; examples include instances of conjuncts which express a certain sequence of events:

- (47) I planted the seed and it grew

- (48) The seed grew and I planted it

Note that not only are (47) and (48) semantically different, but that (48) seems to be interpretable only if the I is stressed.

The derived relative clause sentences are:

- (49) (from (47)) The seed that I planted grew

- (50) (from (48)) I planted the seed that grew

(50), just like (48), seems difficult to interpret unless the emphasis is on the fact that I did the planting.

2. Questions and imperatives

It might appear that my statement that relative clause sentences all have conjunction paraphrases was a bit hasty, since it is well-known that questions and imperatives do not conjoin,

yet both are found in relative clause sentences:

(51) Did you see the coke that I put in the refrigerator?

(52) Get the coke that I put in the refrigerator

Consideration, however, of the following relative clause sentences which do not occur:

(53) *I put a coke in the refrigerator which did you see?

(54) *I put a coke in the refrigerator that (you?) get
leads to the conclusion that we do in fact have conjunctions with questions and imperatives, but only as second conjuncts, with the and deleted. The sources for (51) and (52) above would be conjunctions of this perfectly normal type:

(55) I put a coke in the refrigerator ~~and~~ did you see it?

(56) I put a coke in the refrigerator ~~and~~ get it

Notice that without the "left-to-right" embedding which I have proposed, it would be difficult to know what the underlying structures for (51) and (52) would be, since the following conjunctions, if they exist at all, are not paraphrases of (51) and (52) respectively:

(57) ?Did you see a coke ~~and~~ I put it in the refrigerator?

(58) ?Get a coke ~~and~~ I put it in the refrigerator

3. The in the sense of the only

I shall now attempt to account for the fact that some occurrences of the plus a relative clause seem to be interpretable as meaning the only. For example, the phrase:

(59) the symphony that O'Brien wrote
implies that he only wrote one symphony, while

(60) a symphony that O'Brien wrote
is neutral with respect to the total number of symphonies he wrote.

Before addressing ourselves directly to this problem, it should be pointed out that (59) need not be interpreted as the only symphony O'Brien wrote. For example, under normal stress, (59) might occur in a discussion in which O'Brien's 4th Symphony had recently been mentioned; (59) would then be directing the hearer's attention back to this previously mentioned symphony. With the following stress pattern:

(59) a) the symphony that O'Brien wrote ,
(59) might occur in a discussion of one symphony of each of several composers, where no reference is made to other symphonies which they may have written. Stressed like this:

(59) b) the symphony that O'Brien wrote
this phrase might be found in a discussion of several of O'Brien's compositions: a symphony, a concerto, an opera, and a sonata.

These various interpretations suggest either that (59) is ambiguous and may come from more than one underlying structure, one of these structures containing the sentence

(61) O'Brien wrote one symphony ,
or that (59) is unambiguous and that the various interpretations must be explained in some other way. For two reasons I tend to reject the former hypothesis. First, the differences among the various interpretations of a relative clause phrase such as (59) seem to be matters of context, not directly expressible by regular underlying syntactic differences. Second, (59), which normally seems to take a "the only" interpretation, does not appear to differ in kind, but only in degree, from all other relative clauses, and this difference, too, seems to be a matter of context.

To examine the second point more carefully, it will be necessary to show one further "condition" on the appropriate use of the with relative clauses. Not only must the hearer know what is asserted by the sentence underlying the relative clause, but this sentence must be unambiguous in its reference. This may be demonstrated by considering any relative clause phrase, such as:

(62) the knife that Seymour gave me
Underlying this relative clause, I have claimed, is the sentence:

(63) Seymour gave me a knife
Notice that if, in fact, Seymour gave me three knives, however, it becomes obvious that the the in (62) is inappropriate, not because the hearer does not know that (63) is the case, but because (63) is not unambiguous in its reference. Note that

this cannot be taken to mean that one of the conditions for the use of the is that the hearer be able to identify the referent. This condition fails in two directions, by being neither necessary nor sufficient. The the in (62), for example, may be quite justified if the hearer had never seen the knife that Seymour gave me, or even if he had no idea what kind of a knife it was or what it looked like. On the other hand, in a situation in which:

(64) Here's a cookie for you

might be uttered, the hearer would be very likely to be able to identify the referent, since it might be right in front of him, yet that ability in itself would not justify the use of the. In other words, all the hearer needs to know is that the sentence which underlies a relative clause is unique in its reference.

Exactly the same can be said, I think, of (59).

(59) the symphony that O'Brien wrote

Independent of conversations like the ones suggested above which might affect the interpretation of a relative clause phrase, the sentence underlying (59),

(65) O'Brien wrote a symphony ,

must simply be unambiguous in its reference for the to have been used correctly. If there are no clues from the discussion to make (65) unambiguous, then the hearer, knowing the conditions for the use of the, concludes that there must be only one symphony which could be the referent for (65).